

AMENDMENTS TO THE CLAIMS

Please amend Claims 1-3 and add new Claims 4-10 as follows.

LISTING OF CLAIMS

1. (currently amended) An ejector cycle of a vapor compression type that transfers heat from a low temperature side to a high temperature side, the ejector cycle comprising:

a compressor that draws and compresses refrigerant;

a high pressure side heat exchanger that releases heat from high pressure refrigerant discharged from the compressor;

a low pressure side heat exchanger that vaporizes low pressure refrigerant;

an ejector that includes a nozzle arrangement, which depressurizes and expands high pressure refrigerant supplied from the high pressure side heat exchanger, wherein:

a degree of throttle opening of the nozzle arrangement is variably controllable; and

the ejector draws vapor phase refrigerant, which is vaporized in the low pressure side heat exchanger, through use of drawing force generated by high speed refrigerant flow discharged from the nozzle arrangement and, at the same time, converts expansion energy of the refrigerant discharged from the nozzle arrangement into pressure energy to increase intake pressure of the compressor; and

a gas-liquid separating means for separating the refrigerant discharged from the ejector into vapor phase refrigerant and liquid phase refrigerant, wherein the

gas-liquid separating means has a vapor phase refrigerant outlet for outputting the vapor phase refrigerant and a liquid phase refrigerant outlet for outputting the liquid phase refrigerant, and the vapor phase refrigerant outlet and the liquid phase refrigerant outlet of the gas-liquid separating means are connected to an inlet of the compressor and an inlet of the low pressure side heat exchanger, respectively, wherein:

when a heat load is equal to or greater than a predetermined value, the degree of throttle opening of the nozzle arrangement is controlled in such a manner that a coefficient of performance coincides with a first target value; and

when the heat load is less than the predetermined value, the degree of throttle opening of the nozzle arrangement is controlled in such a manner that a flow rate of refrigerant, which passes through the nozzle arrangement, coincides with a second target value.

2. (currently amended) An ejector cycle of a vapor compression type that transfers heat from a low temperature side to a high temperature side, the ejector cycle comprising:

a compressor that draws and compresses refrigerant;

a high pressure side heat exchanger that releases heat from high pressure refrigerant discharged from the compressor;

a low pressure side heat exchanger that vaporizes low pressure refrigerant;

an ejector that includes a nozzle arrangement, which depressurizes and expands high pressure refrigerant supplied from the high pressure side heat exchanger,

wherein the ejector draws vapor phase refrigerant, which is vaporized in the low pressure side heat exchanger, through use of drawing force generated by high speed refrigerant flow discharged from the nozzle arrangement and, at the same time, converts expansion energy of the refrigerant discharged from the nozzle arrangement into pressure energy to increase intake pressure of the compressor; and

a gas-liquid separating means for separating the refrigerant discharged from the ejector into vapor phase refrigerant and liquid phase refrigerant, wherein the gas-liquid separating means has a vapor phase refrigerant outlet for outputting the vapor phase refrigerant and a liquid phase refrigerant outlet for outputting the liquid phase refrigerant, and the vapor phase refrigerant outlet and the liquid phase refrigerant outlet of the gas-liquid separating means are connected to an inlet of the compressor and an inlet of the low pressure side heat exchanger, respectively, wherein:

when a heat load is equal to or greater than a predetermined value, a flow rate of refrigerant discharged from the compressor is controlled in such a manner that a coefficient of performance coincides with a first target value; and

when the heat load is less than the predetermined value, the flow rate of refrigerant discharged from the compressor is controlled in such a manner that a flow rate of refrigerant, which passes through the nozzle arrangement, coincides with a second target value.

3. (currently amended) An ejector cycle of a vapor compression type that transfers heat from a low temperature side to a high temperature side, the ejector cycle comprising:

a compressor that draws and compresses refrigerant;

a high pressure side heat exchanger that releases heat from high pressure refrigerant discharged from the compressor;

a low pressure side heat exchanger that vaporizes low pressure refrigerant;

an ejector that includes a nozzle arrangement, which depressurizes and expands high pressure refrigerant supplied from the high pressure side heat exchanger, wherein the ejector draws vapor phase refrigerant, which is vaporized in the low pressure side heat exchanger, through use of drawing force generated by high speed refrigerant flow discharged from the nozzle arrangement and, at the same time, converts expansion energy of the refrigerant discharged from the nozzle arrangement into pressure energy to increase intake pressure of the compressor;

a gas-liquid separating means for separating the refrigerant discharged from the ejector into vapor phase refrigerant and liquid phase refrigerant, wherein the gas-liquid separating means has a vapor phase refrigerant outlet for outputting the vapor phase refrigerant and a liquid phase refrigerant outlet for outputting the liquid phase refrigerant, and the vapor phase refrigerant outlet and the liquid phase refrigerant outlet of the gas-liquid separating means are connected to an inlet of the compressor and an inlet of the low pressure side heat exchanger, respectively; and

a flow rate control valve that controls a flow rate of refrigerant supplied from the gas-liquid separating means to the low pressure side heat exchanger, wherein:

when a heat load is equal to or greater than a predetermined value, a degree of opening of the flow rate control valve is controlled in such a manner that a coefficient of performance coincides with a first target value; and

when the heat load is less than the predetermined value, the degree of opening of the flow rate control valve is controlled in such a manner that a flow rate of refrigerant, which passes through the nozzle arrangement, coincides with a second target value.

4. (new) The ejector cycle according to Claim 1, wherein when the heat load is less than the predetermined value, the degree of throttle opening of the nozzle arrangement is controlled in such a manner that the flow rate of refrigerant, which passes through the nozzle arrangement, coincides with the second target value to achieve a specific pump capacity which circulates a required amount of refrigerant to the compressor.

5. (new) The ejector cycle according to Claim 1, further comprising a needle valve body, which is received in the nozzle arrangement and is movable relative to the nozzle arrangement, wherein the degree of throttle opening of the nozzle arrangement is controlled by the needle valve body.

6. (new) The ejector cycle according to Claim 5, wherein the needle valve body is movable in an axial direction of the nozzle arrangement and is tapered toward an outlet of the nozzle arrangement.

7. (new) The ejector cycle according to Claim 2, wherein when the heat load is less than the predetermined value, the flow rate of refrigerant discharged from the compressor is controlled in such a manner that the flow rate of refrigerant, which passes through the nozzle arrangement, coincides with the second target value to achieve a specific pump capacity which circulates a required amount of refrigerant to the compressor.

8. (new) The ejector cycle according to Claim 2, wherein the flow rate of refrigerant discharged from the compressor is controlled by controlling a rotational speed of the compressor.

9. (new) The ejector cycle according to Claim 3, wherein when the heat load is less than the predetermined value, the degree of opening of the flow rate control valve is controlled in such a manner that the flow rate of refrigerant, which passes through the nozzle arrangement, coincides with the second target value to achieve a specific pump capacity, which circulates a required amount of refrigerant to the compressor.

10. (new) The ejector cycle according to Claim 3, wherein the flow rate control valve is positioned between the gas-liquid separating means and the low pressure side heat exchanger.